

A CONSOLIDATED HISTORY OF THE DISCOVERY OF
CHARAXES GALLAGHERI VAN SON 1962
(LEPIDOPTERA : NYMPHALIDAE); ITS HABITS,
HABITATS AND EARLY STAGES

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Since the first discovery in 1956 of this very distinct species a fairly comprehensive portfolio of knowledge concerning its life-cycle, habits and habitats has been built up. It has also become apparent that, although its range of flight and seasonal appearances are limited, the species is widespread in Zimbabwe/Rhodesia and can be relied upon to appear with the greatest regularity in its chosen habitats in proximity to its foodplant.

Much of the information concerning this insect has been published piecemeal over the years and references to some of the literature on the subject are given at the end of this paper. However, it has occurred to me that a consolidation or summary of the gradual acquisition of knowledge of *gallagheri*, particularly of the early stages, might be of general interest to lepidopterists. Historically, the first known capture was a female taken by B. D. Barnes in 1934. However, this specimen was erroneously identified as *Ch. aubyni australis* van Someren & Jackson (1957), to which it bears a superficial resemblance, by van Someren & Jackson in 1957.

The original male from which the new species was described was caught by R. J. Gallagher, settled on mud, on 19th March, 1956. The specimen was sent to Dr. G. van Son at the Transvaal Museum, Pretoria, who named it for its discoverer.

The capture of another male on the same day by T. W. Schofield only a few miles away in the Sabi Valley remained unrecorded for some years owing to the failure by Schofield to appreciate that this specimen was of a then undescribed species.

These two simultaneous first records of a hitherto unknown species occurring within 10 miles of each other can only be described as an astonishing coincidence. It is also notable that both specimens were taken settled on mud. Virtually all subsequent captures have been either in trapnets or on trees in proximity to the foodplant, or on the wing.

The next known record was of a male trapped on 6th March, 1961, at Mapembi, near Odzi, by that veteran naturalist Harold Cookson. This locality is within 15 miles of the first captures. All three are at an altitude of approximately 900 metres in msasa savannah country studded with granite kopjes. Later in 1961 a new locality was discovered some 250 km away at Christon Bank, 30 km from Salisbury towards Mazoe. On 5th December, 1961, I netted a male settled on a twig about 3 m above ground at the summit of a granite kopje about 1,500 m above sea level. Further males were taken at the same spot during that month. Thereafter, many males were taken by a number of collectors both by handnets and in traps,

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at Christon Bank and certain other locations. There were, however, no known female captures until one was trapped by, appropriately enough, Harold Cookson at Mapembi on 31st March, 1962 in the vicinity of his earlier male capture. This specimen was used for the description of the female of the species by Dr. G. van Son, in 1963. However, it is believed that the females had apparently been recorded from Christon Bank by Dr. C. B. Cottrell prior to Cookson's captures.

Over the next few years, further females were taken in all areas where males had been recorded but their numbers were very small by comparison with the males.

Extensive collecting of the species since 1962 has revealed the very constant nature of its habits which, in brief, are set out below:—

- (1) The species is double-brooded, appearing on the wing in mid-March until late April and again from mid-November until late December.
- (2) The habitat is granite kopje country, normally associated with the foodplant, at altitudes of between 900 m and 2,000 m.
- (3) Its distribution is widespread, records extending from near Salisbury, eastwards through Melfort to Umtali, south via Odzi to Zimbabwe and on to Botswana.
- (4) The species is slowflying, bearing little resemblance in mode of flight to its near-congeners *Ch. chittyi* Rydon, 1980 and *Ch. guderiana* Dewitz (1879) both of which can be observed flying in company with *gallagheri* at Christon Bank.
- (5) The males exhibit quite remarkably constant preferences for the same perches year after year on the same trees where they will sit, with wings half-open sunning themselves at about 3 m from the ground, rarely taking flight unless disturbed.
- (6) The females are comparatively rarely seen except in proximity to banana bait and, as with many other *Charaxes* species, do not have the male habit of returning to the same perch after flight.

Some years were to pass before the foodplant and early stages of the butterfly were to be discovered. In October, 1966, having observed the behaviour of a number of females at Christon Bank, I sent Dr. van Son at the Transvaal Museum in Pretoria a sample of the bush which I believed to be the foodplant. This was identified by the South African National Herbarium as *Diospyros natalensis* ssp. *nummularia* (Brenan) (Ebenaceae). However, despite thorough searching over an extended period I was unable to find any larvae with which to substantiate my belief that this indeed was the foodplant. Confirmation was only to come some years later when that wizard of *Charaxes* breeding Mr. Ivan Bampton, having been shown the location and the actual bush which had been identified by Dr. Van Son, had little or no difficulty in finding, in May 1975, what were almost certainly *gallagheri* larvae, probably 3rd instar, on that and other examples of *nummularia* in the vicinity.

Three larvae were left in my care in May, 1975 and it was thus necessary for them to be brought through the winter, either as larvae or pupae, before reaching the imago stage as the November/December brood. A further three larvae, two from Christon Bank

and one from Zimbabwe (Lake Kyle) were received from Ivan Bampton in August of the same year. In the event this episode ended in failure, all the larvae dying before pupation in spite of regular supplies of fresh food on an almost daily basis. Behaviour indicated a semi-hibernatory period during the mid-winter months when little or no growth or feeding took place. It is reasonable to assume that these larvae should have pupated in November emerging later as the November/December brood. This experience indicated quite clearly a diapause probably in the 4th instar stage between June and September when very little feeding or growth takes place. This is in contrast with later experiences with the summer brood when larval growth remains strong throughout the warm weather prior to emergence in March/April.

In February, 1976, a further 10 larvae were secured by Bampton from both Christon Bank and Lake Kyle (Zimbabwe) areas and again left in my care. Nine were successfully brought through to the imago stage. Of these, four were males, all of which emerged first, and five were females. This would seem to indicate that, in nature, females are in numbers at least equal to, if not greater than, males although apparently much scarcer to the collector, and that there is a preponderance of earlier male emergences. Photographs of final instars and pupae were taken and have been used by Mr. G. A. Henning (1977) as the basis for his published description of the early stages of the species.

Subsequently, in November 1976, I was successful in bringing through to the imago stage two further larvae, also collected by Bampton at Christon Bank. The discovery of the egg stage came subsequently to the above series of events and the ovum has been described by Henning (1977).

Finally, one can only comment that it seems almost incredible that a species so distinct, so constant in its habits and so easy of capture when these are known, can have remained unknown and undescribed for more than half a century of entomological exploration in this country. Perhaps the answer may lie in the comparative difficulty of access to the summits of the granite kopjes which are its normal habitat and to its very definite reluctance to move more than a short distance away from the foodplant. It is certainly true that the development of Christon Bank for residential purposes, however much this may be regretted in relation to the potential threat to the fauna and flora of the area, has provided easy access to some particular spots yielding some remarkable entomological records.

The following is the description of the ova and final instar larva as given by Mr. Graham Henning in 1977:—

Ova: Usual *Charaxes* shape, yellowish white with brown ring if fertile. They are laid singly on both the upper and undersides of the leaves of the foodplant.

Final Instar Larva: Headshield green, with a faint, light green facial margin; horns long, with the upper two-thirds dark pinkish brown; dorso-medial spines black. Body

green with broad dorso-lateral somite bars on segments 6, 8 and sometimes 10. The somite bars are pinkish-white, anteriorly edged with black spotted with blue; the dorsosomitic spots on segments 6 and 8 are blue. Lateral ridge green and anal processes short and square.

Pupa: Plain green in colour.

The imago has been illustrated in so many publications already that a further description seems unnecessary.

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References

- Henning, G. A. 1977. Observations on the Early Stages of Ethiopian *Charaxes* with notes on Life Histories (Lepidoptera: Nymphalidae). *Ann. Transv. Mus.* 30 (19) : 219-230
- Pennington, K. M. 1978. *Pennington's Butterflies of Southern Africa*. Edited by C. G. C. Dickson, with the collaboration of D. M. Kroon. 1 - 669, 198 pls. Johannesburg, Ad. Donker.
- Van Someren, V. G. L. 1966. Revisional notes on African *Charaxes* (Lepidoptera : Nymphalidae). Part III. *Bull. Br. Mus. nat. Hist. (Ent.)*, 18: 45-101, 5 maps, 16 pls.
- Van Son, G. 1962. New African Butterflies, 1 *J. ent. Soc. sth. Afr.* 25 : 140-148.
- 1963. New African Butterflies, 2. *Novos Taxa ent.* 29 : 1-11.
- 1979. The Butterflies of Southern Africa. Part IV. Nymphalidae : Nymphalinae. Revised and edited by L. Vari. *Transv. Mus. Mem.* 22 : 1-286, 76 pls.

LARVAL VARIATION IN THE PINE BEAUTY: *PANOLIS FLAMMEA* HBN. — The larva of the Pine Beauty, *Panolis flammea* Hbn. is normally dark green dorsally and laterally, with a series of five longitudinal white stripes, and pale green ventrally with three thin cream stripes. A form in which the dark and pale green is replaced by dark and light brown is also known to occur. Whilst rearing this species I obtained evidence to suggest that the brown form is genetically controlled and is inherited as a unifactorial autosomal recessive. I also noted that the two types of larvae behave differently, in that when not feeding they take up different positions on the foodplant, *Pinus sylvestris*. Thus, the green larvae tended to rest lying along the needles, whilst the brown larvae rested on the pine twigs. The difference in behaviour has obviously evolved to increase the camouflage of the respective forms, and it would be interesting to hear if anyone else has noted similar behavioural differences in other species which show the same type of polymorphism, e.g. the Pine Hawk, *Hyloicus pinastri* Linn., or the Bordered White, *Bupalus piniaria* Linn. — (Dr.) MICHAEL E. N. MAJERUS, Dept. of Genetics, Downing Street, Cambridge.

THE DELICATE: *MYTHIMNA VITELLINA* HBN. IN MAY. — Several rather faded *M. vitellina* appeared in my light trap at Chyenhall near Penzance, Cornwall on the 30th and 31st May 1982. — M. W. F. TWEEDIE, Barn House, Rye, Sussex TN31 7PJ.